2018 / 2019 CURRICULUM - HONOURS ELECTRICAL ENGINEERING

ENTRY FROM CEGEP **Total credits:** **113**

First Semester (Fall 2018)		15 credits
CIVE 281	**Analytical Mechanics**	(3 cr, C - MATH 262, MATH 263)
ECSE 202	**Intro. to Software Development**	(3 cr)
ECSE 200	**Electric Circuits 1**	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)
MATH 262	**Intermediate Calculus**	(3 cr, P-MATH 141, MATH 133 or equiv)
MATH 263	**ODEs for Engineers**	(3 cr, C - MATH 262)

Second Semester (Winter 2019)		16 credits
ECSE 205	**Probability & Statistics for Eng.**	(3 cr)
ECSE 206	**Intro. to Signals & Systems**	(3 cr, P - ECSE 200)
ECSE 210	**Electric Circuits 2**	(3 cr, P - ECSE 200)
ECSE 211	**Design Principles and Methods**	(3 cr, P - ECSE 200, ECSE 202)
ECSE 251	**Electric and magnetic fields**	(3 cr, P - MATH 262, ECSE 200)
FACC 100	**Intro. to Engineering Profession**	(1 cr)

Third Semester (Fall 2019)		17 credits
COMP 250	**Introduction to Computer Science**	(3 cr)
ECSE 222	**Digital Logic**	(3 cr, P - ECSE 202)
ECSE 362	**Fundamentals of Power Eng.**	(4 cr, P - ECSE 210, ECSE 251, CIVE 281)
ECSE 396	**Honours Research Lab 1**	(1 cr)
CCOM 206	**Communication in Engineering**	(3 cr)
MIME 262	**Properties of Materials in EE**	(3 cr)

Fourth Semester (Winter 2020)		16 credits
ECSE 307	**Linear Systems & Control**	(4 cr, P - ECSE 206, ECSE 210)
ECSE 324	**Computer Organization**	(4 cr, P - ECSE 200, ECSE 222)
ECSE 331	**Electronics**	(4 cr, P - ECSE 210)
ECSE 397	**Honours Research Lab 2**	(1 cr, P - ECSE 396)
XXXX xxx	Humanities & Social Sciences *	(3 cr)
FACC 250	**Resp. of the Prof. Engineer**	(0cr)

Fifth Semester (Fall 2020)		17 credits
ECSE 308	**Intro. Comm. Sys. & Networks**	(4 cr, P - ECSE 205, ECSE 206)
ECSE xxx	**Technical Complementary 1**	(4 cr)
ECSE 354	**Electromagnetic Wave Propagation**	(4 cr, P - ECSE 251)
FACC 300	**Engineering Economy**	(3 cr)
ECSE 496	**Honours Research Lab 3**	(1 cr, P - ECSE 397)
FACC 400	**Engineering Professional Practice**	(1 cr, P - FACC100, 60 program credits)

Sixth Semester (Winter 2021)		17 credits
ECSE 498	**Honours Thesis 1**	(3 cr, P - CCOM 206, 42 departmental credits)
ECSE xxx	**Technical Complementary 2**	(4 cr)
XXXX xxx	**Technical Complementary 3**	(3 cr)
XXXX xxx	**Technical Complementary 4**	(3 cr)
ECSE 497	**Honours Research Lab 4**	(1 cr, P - ECSE 497)
XXXX xxx	Impact of Technology on Society **	(3 cr)

Seventh Semester (Fall 2021)		15 credits
ECSE 499	**Honours Thesis 2**	(3 cr, P - CCOM 206, 42 departmental credits)
ECSE 543	**Numerical Methods in EE**	(3 cr, P - ECSE 324, ECSE 331, ECSE 251)
XXXX xxx	**Technical Complementary 5**	(3 cr)
XXXX xxx	**Technical Complementary 6**	(3 cr)
XXXX xxx	**Elective Course*** **	(3 cr)

Courses shown in boldface above must be passed with a grade "C" or better. A "D" is *only* acceptable in the courses *not* in boldface. Also, a grade of "C" is required in all prerequisites in order to proceed with the follow-on courses.

Technical Complementary courses are selected from the list given on the next page.

* For instructions on selecting valid "Humanities and Social Sciences" courses, see www.mcgill.ca/ece, then: Undergraduate Studies > Program Information > Complementary Studies.

** For instructions on selecting valid "Impact of Technology on Society" courses, see www.mcgill.ca/ece, then: Programs and Courses > Undergraduate > Complementary Studies.

*** One 3-credit course at the 200-level or higher from any department at McGill, approved by the Undergraduate Programs Office in the Department of Electrical and Computer Engineering. For approval, please contact our office at undergrad.ece@mcgill.ca.

This sample curriculum is for students who wish to complete their degree requirements in 7 semesters. Students may, at any time, deviate from this structure. However, it is the student's responsibility to devise a study plan that has no course conflicts or prerequisite/corequisite violations. Academic advisors are available for help with course selection.

Revised July 2018

HONOURS ELECTRICAL ENGINEERING

Technical Complementaries, 6 courses

Six technical complementaries must be chosen, as follows:
(1) 8 credits (2 courses) from List A
(2) 6-8 credits (2 courses) from 500 level ECSE courses
(3) 3-4 credits (1 course) from List A, List B or from 500 level ECSE courses
(4) 3-4 credits (1 course) from List C or from 500 level ECSE courses

A. Four-credit Technical Complementaries

ECSE 335	Microelectronics	(4 cr, P - ECSE 331)
ECSE 403	Control Systems	(4 cr, P - ECSE 307)
ECSE 408	Communication Systems	(4 cr, P - ECSE 205, ECSE 308)
ECSE 416	Telecom. Networks	(4 cr, P - COMP 250, ECSE 205 and (ECSE 308 or ECSE 316)
ECSE 433	Physical Basis of Transistor Devices	(4 cr, P - MIME 262, ECSE 331, ECSE 251)
ECSE 444	Microprocessors	(4 cr, P - ECSE 324)
ECSE 470	Electromechanical Systems	(4 cr, P - ECSE 362)

B. Other ECSE Technical Complementaries

ECSE 310	Thermodynamics of Computing	(3 cr, P - ECSE 200, ECSE 205, ECSE 222)
ECSE 325	Digital Systems	(3 cr, P - ECSE 324)
ECSE 415	Introduction to Computer Vision	(3 cr, P - ECSE 206)
ECSE 420	Parallel Computing	(3 cr, P - ECSE 427)
ECSE 421	Embedded Systems	(3 cr, P - ECSE 324)
ECSE 422	Fault Tolerant Computing	(3 cr, P - ECSE 324, COMP 250)
ECSE 424	Human-Computer Interaction	(3 cr, P - ECSE 324, COMP 250)
ECSE 425	Computer Architecture	(3 cr, P - ECSE 324)
ECSE 427	Operating Systems	(3 cr, P - ECSE 324)
ECSE 428	Software Engineering Practice	(3 cr, P - ECSE 321)
ECSE 429	Software Validation	(3 cr, P - ECSE 321 or COMP 303)
ECSE 435	Mixed Signal Test Techniques	(3 cr, P - ECSE 206, ECSE 335)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 324, ECSE 325, ECSE 206)
ECSE 446	Realistic Image Synthesis	(3 cr, P - ECSE 202, ECSE 205, COMP 250)
ECSE 451	EM Transmission & Radiation	(3 cr, P - ECSE 354)
ECSE 460	Appareillage électrique	(3 cr, P - ECSE 464)
ECSE 464	Power Systems Analysis	(3 cr, P - ECSE 362)
ECSE 466	Réseaux de distribution	(3 cr, P - ECSE 362)
ECSE 467	Comportement des réseaux électriques	(3 cr, P - ECSE 464)
ECSE 468	Electricité Industrielle	(3 cr, P - ECSE 362)
ECSE 469	Protection des réseaux électriques	(3 cr, P - ECSE 464)

C. Math and Physics Technical Complementaries

COMP 551	Applied Machine Learning
MATH 247	Honours Applied Linear Algebra
MATH 249	Honours Complex Variables
MATH 375	Honours Partial Differential Equations
MATH 547	Stochastic Processes
MATH 560	Optimization
PHYS 357	Honours Quantum physics 1
PHYS 434	Optics
PHYS 457	Honours Quantum Physics 2
PHYS 519	Advanced Biophysics
PHYS 558	Solid State Physics